

Plot Two or More Lines with Legends, Different Widths and Colors

Aim

To create a Python program that plots two or more lines with legends, different widths, and colors using Matplotlib.

Algorithm

1. Import the required libraries (matplotlib.pyplot).
2. Define the data for x-axis and multiple y-axes.
3. Create a new figure and axis object.
4. Plot multiple lines using `plt.plot()` with different parameters for each line:
 - Specify different colors
 - Set different line widths
 - Add labels for each line (for the legend)
5. Customize the plot:
 - Add a title
 - Label the x and y axes
 - Add a legend
 - Set the x-axis limits
 - Add a grid
6. Display the plot.

Code

```
import matplotlib.pyplot as plt
import numpy as np

x = np.linspace(0, 10, 100)
y1 = np.sin(x)
y2 = np.cos(x)
y3 = np.tan(x)

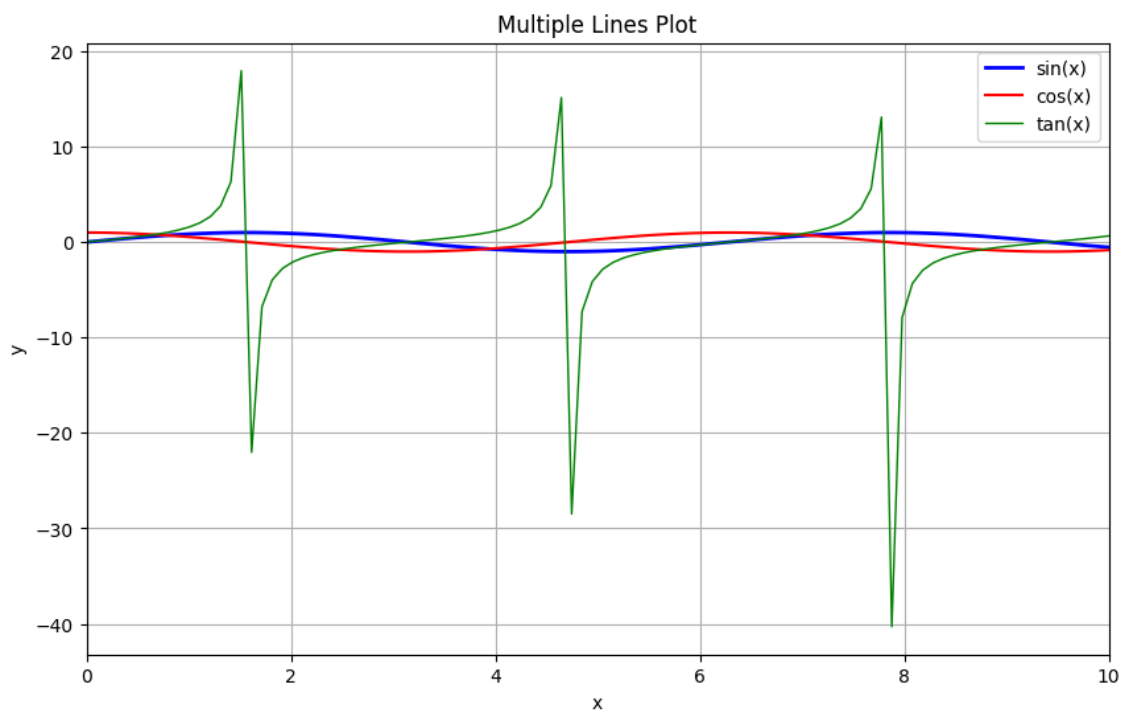
fig, ax = plt.subplots(figsize=(10, 6))

ax.plot(x, y1, color='blue', linewidth=2, label='sin(x)')
ax.plot(x, y2, color='red', linewidth=1.5, label='cos(x)')
ax.plot(x, y3, color='green', linewidth=1, label='tan(x)')

ax.set_title('Multiple Lines Plot')
ax.set_xlabel('x')
ax.set_ylabel('y')
ax.legend()
ax.set_xlim(0, 10)
ax.grid(True)

plt.show()
```

Output



Result

The program successfully creates a plot with three lines (sine, cosine, and tangent functions) using different colors and line widths. The plot includes a legend, labeled axes, a title, and a grid for better readability.